CLICKLESS MOUSE INTERACTIVITY FOR TOURISM WEBSITE

by

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Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
Information and Communication Technology

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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the
Information Technology Programme
Universiti Teknologi PETRONAS
in partial fulfillment of the requirement for the
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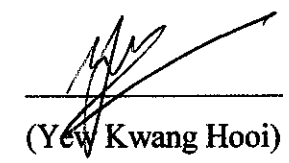
Approved by,



(Yew Kwang Hooi)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
January 2008

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

AHMADNIZAM BIN WAHAB

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Thank You,

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Abstract

Clickless Mouse Interactivity for Tourism Website is a study of mouse interactivity which does not involve any mouse clicking to navigate, highlight, select or getting the properties of a link. Alternative mouse interactivity will be proposed to replace double-click, single-click, right-click, dragging to highlighting and drag and drop.

A prototype based on a tourism website is developed to support both clicking and clickless interactivities. Experiment will be carried out on end-users to study the effect of clickless on usability of the website. The hypothesis that clickless mouse interactivity enhances the usability of a tourist website is tested.

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CHAPTER 1
INTRODUCTION

1.1 Background of study

In the early days, the primary tool used by travelers or backpackers are tour book and a map. Tour books are usually several hundred pages long and updated from time to time. Tour book contains of points of interest, cultural and historical and of course the map.

Website can play an important role in promoting less-known places of interest such as those in Ipoh, Perak. Visitor can find useful information such as routes to places of interest, time needed to travel using car or other public transportation if available in that selected location and what they can expect to see around that places of interest.

Tourism and hospitality website is one of the most visited e-commerce sites and among the most clicked websites. Frequent clicking, especially in an improper posture, such as clicking at public kiosk or cyber café for backpack tourist, may cause aggravate syndromes related to repetitive injuries.

Since it is a hospitality website, including Ipoh tourist website, aims to provide hospitable and friendly services to the tourist, it is a motivation for the author and supervisor to begin the hospitality with the first touch of the mouse.

1.2 Problem Statement

I. **Mouse click can cause discomfort to users**

Constant clicking with the computer mouse and abnormal hand position can cause damage to the tissues. In the long run this can lead to inflammation of the nerve fibers and trigger pain to the hand.

II. **Lack of web content for mobile handheld gadgets.**

Clicking on handheld device is more difficult due to its small form factor size; small key pad can further aggravate discomforts.

1.3 Objective

The main objectives of this project are:

- To propose a new clickless model for mouse interactivity on tourism website.
- To carry out human computer interaction study on the usability of clickless interactivity.

1.4 Scope of Work

A prototype website for Ipoh Tourism Online Map is developed to demonstrate the proposal. This project will be done in a period of one year and will be focusing on the clickless interaction between users and the Ipoh Tourism Online Map. The website prototype is based on the content of the existing Ipoh Tourism Website but in clickless environment. Effects on users from ease-of-use consideration such as usability, navigation and interactivity are compared to conventional mouse-clicking website.

CHAPTER 2
LITERATURE REVIEW

2.1 Web Activities

A study has been carried out by Abigail J. Sellen and Rachel Murphy and a detailed record of slightly less than 300 different Web activities (an average of about 6 per person per day) was recorded. It was immediately clear that while there was much variety in the detail, these activities also fell into distinct clusters in terms of their goals and purposes, the way in which they were carried out, and the way in which they were done in the context of other, bigger and more complex activities. Overall, there are six categories of activity types: [1]

Finding:

Using the Web to find something specific. Searching is goal-oriented and very well defined: E.g., Finding a fact such as a phone number, spelling or product name; a set of facts such as a list of ingredients for a recipe, or list of train times; or a virtual product or products such as a document, software, map, or image.

Information Gathering:

Less specific than "finding", but using the Web to purposefully research a specific topic for various reasons. E.g., Gathering information in order to compare, choose or decide about something (such as buying products or looking for jobs); in order to supplement a future task (such as collecting background information to write a document, or to prepare for a meeting); or in order to be inspired or get ideas.

Browsing:

Going to sites out of personal or work-related interest with no specific goal in mind but rather to be informed, stay up to date or be entertained. E.g., browsing through a newspaper or magazine, following an interesting link, or checking to see what's new on a hobby-related site.

Transacting:

Using the Web to execute a transaction securing future products or services. For example making a bank transfer, paying a bill, ordering a physical product, or filling out questionnaires.

Communicating:

Using the Web in order to participate in chat rooms or discussion groups. (Email activities were excluded from this study.)

Housekeeping:

Using the Web primarily for checking or maintaining the accuracy and functionality of Web resources.

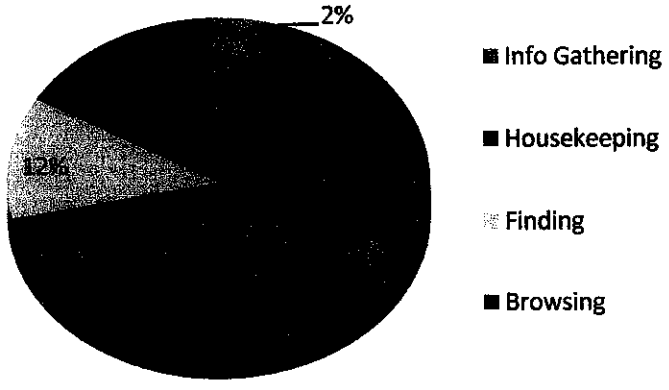


Figure 2.1 Overall time spent on different Web activities

2.2 Malaysian's Internet Usage

2.2.1 Logon Time and Main Use of the Internet

70.2 percent of Malaysian users logon at night. The five most popular activities while on the Net are e-mail (73.7 percent), education/research (46.8 percent), finding information about goods and services (40.5 percent), participation in chat rooms (25.9 percent) and reading online newspapers (20.2 percent).

Table 2.1 Malaysian activities on the internet

	Percent
E-Mail	73.7
Chat Rooms	25.9
Finding information about goods and services	40.5
Getting information from/interacting with government	12.7
Reading/downloading online newspapers / news / magazines	20.2
Playing / downloading games, music, software	19.9
Other entertainment/pleasure	7.0
Online banking/financial activities	12.2
Purchasing/ordering goods or services	2.4
Educations/research activities	46.8
Others	1.3

2.2.2 Access to the internet

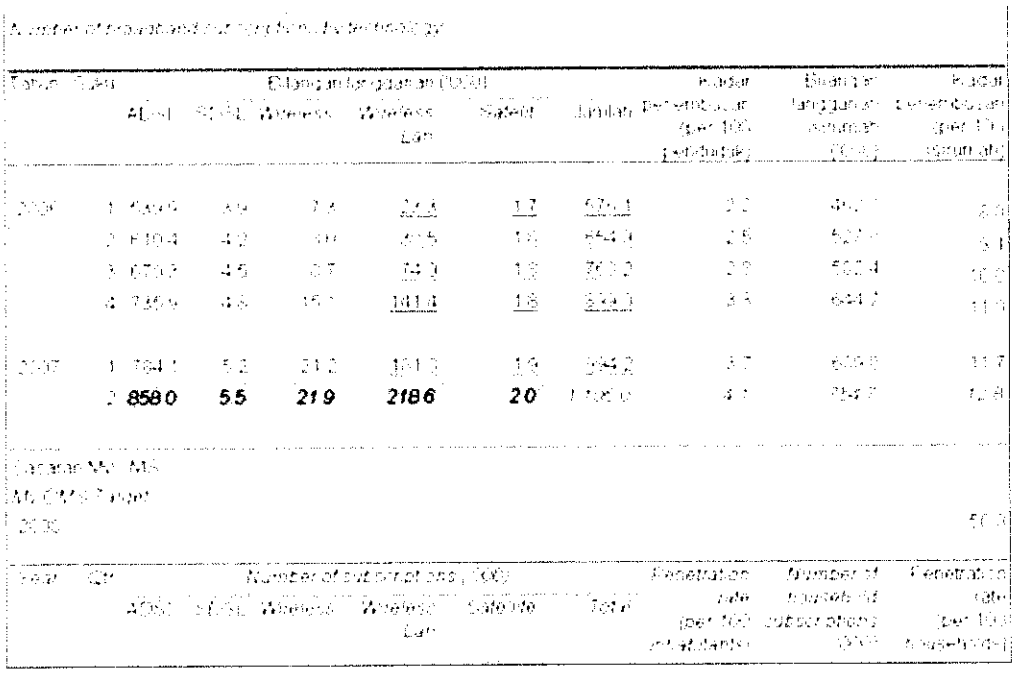
More than half of home Internet users also access the Internet away from home. Among these, more than half, reportedly access the Internet from work while a third access the Internet from libraries and cybercafés and a quarter from schools/universities. [11]

Table 2.2 Access to the internet

	Percent
Work	51.5
School/university	25.4
Public (Library, cybercafé, etc)	33.0
Others	3.1

Internet users keep on growing year by year in Malaysia. Based on the survey done by Malaysian Communications and Multimedia Commission, internet broadband user keep on increasing year by year and it shows that more and more people needs internet in their daily life and it is part of the things needed in life.

Table 2.3 Number of broadband user



From the research conducted from Malaysian Communications and Multimedia Commission (MCMC), it shows that people from Malaysia do conduct their research such as visiting tourism website before planning their holidays to the selected places. From the internet survey conducted by Nielsen/NetRating it also shows that Web Map is one of the most visited website there.

2.3 Clickless Navigation

2.3.1 Carpal Tunnel Syndrome

According to Richard D S Hill (2006-07-29) "It is important to allow instant access to the rest of your site from anywhere within it. Ideally, you should be able to go to any page in a maximum of two clicks and one is better. Motto: the less clicks the better." [2] This is one of the things that website designer should consider and keep in mind in improving the navigation of their website.

"Tingling and numbness were associated with mouse use, but inclusion of symptoms at night showed that this association was only significant for mouse use exceeding 30 hours per week."[3] With clickless mouse navigation control, it can help reduce mouse clicking activities and can help preventing our wrist from Carpal Tunnel Syndrome.

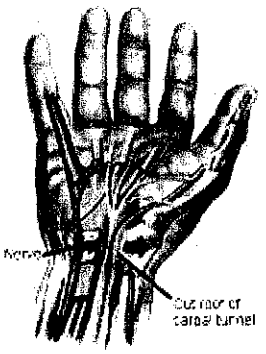


Figure 2.2 Carpal Tunnel Syndrome

If you are using the wrist frequently, it results in thickening or swelling of the tendons, exerting pressure on the nerve. This nerve is responds to compression with pain, tingling and numbness that may radiate up and down the arm. People often wake up in the middle of the night with a painful and numb arm and they shake the hand for relief. There may be weakness of the fingers, grasping small objects and distinguishing between hot and cold may be difficult as the compression progresses. The chances of developing carpal tunnel syndrome are more if there is a fracture or sprain of the wrist which disrupts the various structures in that area. [3]

In my opinion, we rely too much on clicking to navigate. This was not always the case: originally, the default for Unix operating systems was to assign focus to the window that the mouse was hovering over. It was the Windows world that promoted its own brand of clicking to accomplish tasks and activate items. Very quickly it became apparent that too many clicks were needed to accomplish even the most basic tasks. For example, to activate items in an application you usually have to click or double-click them. The Adobe Reader slider is a great way to sift through the data and find the page you want. However, what if the document you're looking at has thousands of pages? It would seem that the Adobe Reader slider pane has the same problem as all other sliders have it's easy to iterate 10, or maybe 100 pages, but beyond that the navigation gets tedious. [4]

2.3.2 Clickless Navigation Website

Every day we move and navigate through the virtual spaces of the internet through the use of our mouse. We guide our pointers over links and we move from one page to another through a click of a button. [12]

There is currently one website that uses clickless navigation in their website navigation. It attracts around 2 million visitors worldwide to test their clickless navigation website. This website is only doing a research for a new way to navigate through out the website without any mouse click activity.

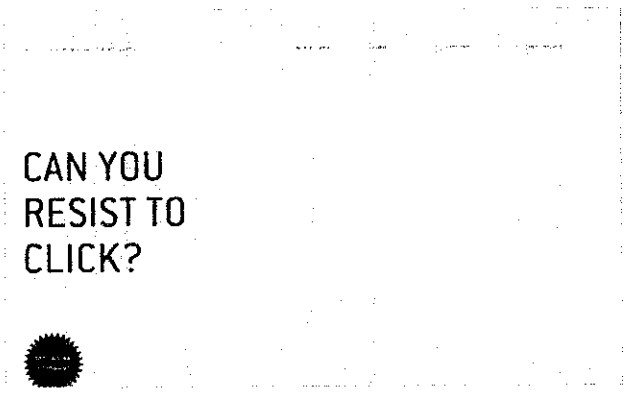


Figure 2.3 Dontclick.it user interface

Created by the Institute for Interactive Development, Dontclick.it is a flash-based non-commercial research project designed to investigate what internet navigation would be like if the ability to click was removed. The problem with this website navigation is that whenever we accidentally mouse over the link, it will straight away open the other pages. It is too sensitive as normal user will usually accidentally move their mouse over the link as their intention is just to move the mouse away from certain places in that page.

There are more than 2 million visitor visit that website. "While initially a little disorientating, the interface quickly becomes intuitive and it is clear from the statistics available on the site that many people (nearly two thirds) conclude that they do not miss clicking once they get used to the idea. The implications of this project are interesting but whether the idea can be practically applied to linking separate websites or for e-commerce where users could potentially pay for things without the definite yes/no that clicking uniquely enables remains to be seen." [13]

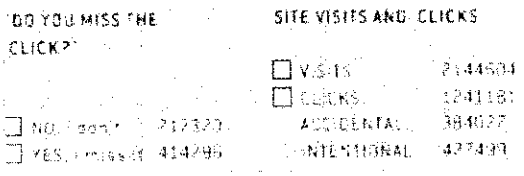


Figure 2.4 Dontclick.it site visitor.

There is currently no tourism website that offers clickless mouse navigation available today. Traditional way of browsing through tourism website is by using mouse click to click on the link to open up a link. With the availability of this website project, it can provide user a new way to navigate website.

2.4 Web Mapping

According to Yan Huiwu: "Nowadays, with the quick development of the technology of the computer and the communication, the world has entered into the era of the informational network. Just as the other traditional subjects, cartography also faces the tremendous impact of the informational network. Giving the users a quick and new approach of all kinds of the maps, the Internet makes the application of the maps a new definition and gives birth to new products of cartography — web maps: Web maps belong to a new kind of maps which are browsed, produced and used in the network. They use the Internet as the medium of transmission. They offer the users with continuous and multi-scaled description of space. They also offer the users with exact geographical coordinates and functions of spatial searching, query and analysis, whose key features are object-oriented, distributive and mutual operational. With the popularization of the Internet, web maps which serve the visualization and transmission of the spatial information will win more recognition by the people." [5]

The latest research from Nielsen//NetRatings, the leading provider of market intelligence on consumer behavior and trends on the Internet reveals that online map websites in Europe, such as multimap.com and streetmap.co.uk in the UK, mappy.com in France, map24.com in Germany and karthotellet.com in Sweden have experienced a growth of almost 300% in the last 12 months. [6]

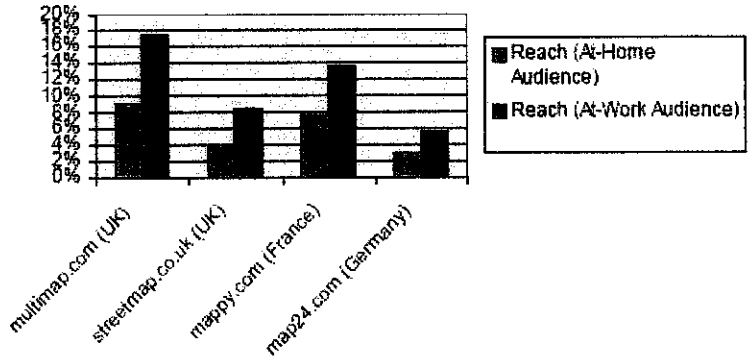


Figure 2.5 Visitor of web maps outside Malaysia

Tom Ewing, European Analyst at Nielsen//NetRatings says "This is a great example of the Internet making a practical difference in people's lives. It's the kind of service that easily gets taken for granted but these sites actually have enormous potential. Whilst at present, the majority of these sites provide their information for free; there is a possibility to generate revenue from them in the future. [6]

It is proven that electronic map or web map is useful and needed by user nowadays. It is the easiest way to know direction to go to one location.

2.5 Flash technology

Flash is an application that design animation and was developed by Future Wave in 1995 which was known as FutureSplash Animator by that time. In December 1996, that software was acquired by Macromedia and later been released as Flash 1.0. The latest version of Flash is Flash CS3 Professional which was released on April 16, 2007. Flash CS3 is the first version of Flash released under the Adobe name. CS3 features full support for ActionScript 3.0, adds better integration with other Adobe products such as Adobe Photoshop, and also provides better Vector drawing behavior, becoming more similar to Adobe Illustrator and Adobe Fireworks.

"Flash has the advantages in the facture and the issuance of multimedia through the Internet. Combined with geographic and thematic information, we can fully exploit Flash to produce the web maps, full of interoperability, intellectuality, interest and esthetics. Using such web maps through the network, the users can enjoy the professional map service with a higher level of visualization." [5]

2.6 Action Script

The use of ActionScript 2.0 allows you to create new features that can be accessed via methods of new classes. This is the preferred way of building up libraries of commonly used features not native to ActionScript. For many designers, the ActionScript 2.0 OOP coding style may initially seem a little long-winded because more lines of code seem to be concerned with building up the code structure than actually solving the problem at hand, especially for modest classes. This extra structure is, however, a real advantage in the long term. It gives you a structured way to make your code flexible enough to reuse in several different applications and also makes your code easier to transfer to other users (which is particularly useful in a design environment consisting of an ActionScript coder and several non-scripting designers). [8]

2.7 Basic Mouse Function

"On a Windows PC, the mouse is the most fundamental method of interaction with the operating system and its applications. It is surprising therefore that new users are rarely taught how to use the mouse. An instructor teaching a newbie might suggest "Left-click on that button. Right-click on that icon. Double-click on that application". The instructor is telling the user what to do with the mouse, but is failing to impart how to use the mouse. Crucially, the rules are not being conveyed." [17] The basic rules of mouse interaction are short and simple:

- Left-click to make a selection (e.g. a link / button / tick-box / menu item)
- Right click to open a context-sensitive menu
- Double left-click to open an application or document from an explorer window

CHAPTER 3
METHODOLOGY

3.1 Project Approach

The development methodology used in this project is Evolutionary Prototyping Method as shown in figure 3.1 below. The reason for choosing this method is because it addresses the requirement specification limitation of the waterfall model.

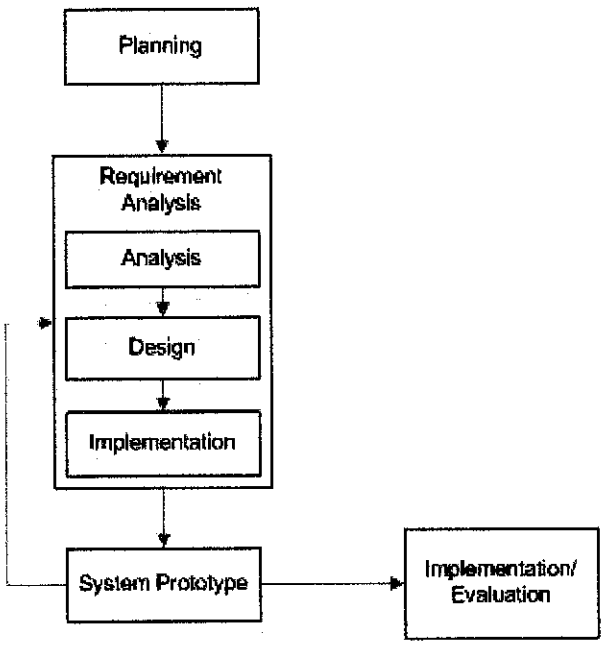


Figure 3.1 Prototyping method

3.2 Stages of Prototyping Method

3.2.1 Planning

Project planning started at this stage where topic of this project is being selected and area or scope of project is defined. This is where all of the resources for this project are being gathered. Literature review is conducted during this stage and all the journal and articles has been read through to get a better understanding of the clickless mouse navigation and about web mapping.

3.2.2 Requirement Analysis

3.2.2.1 Analysis

Analysis of current system is conducted at this stage. From the research that has been done, there are two websites that offer Perak web mapping but none of the websites offer detailed information on places of interest available in Ipoh. That website also does not show directions on how to go to the specific area and there is no section where user can post their comment or to put their recommendation.

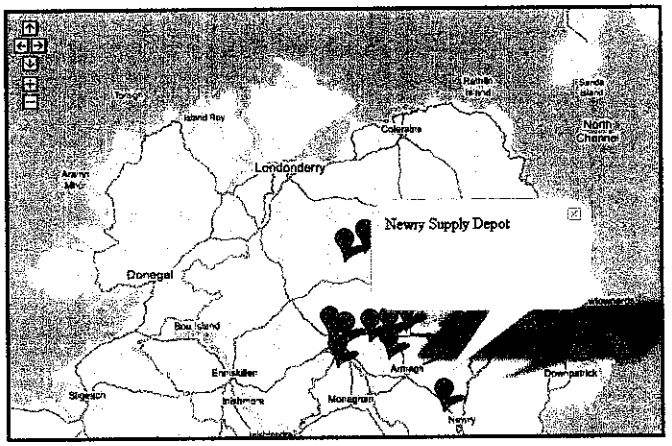


Figure 3.2 Example of online map

Since the prototype will be based on Adobe Flash, user's personal computers have to be installed with the latest Adobe Flash Player to view it.

3.2.2.2 Design

To develop this project, PHP programming with APACHE web server and Flash animation will be use in the development. ActionScript will be the scripting language which will be used for the clickless mouse navigation. The interface will be design as well as the program flow in this phase.

3.2.2.2.1 The Architecture

This prototype will be based on Client Server Architecture where it will involve client and server interaction. Whenever user or a client web browser request specific information from the web site such as the distance of places, the server finds all of the data in the database needed to satisfy the browser's request, assembles that data into a web page, and transmits that page back to the client and they can view the information they wanted like the distance that they needed to know from one place to another.

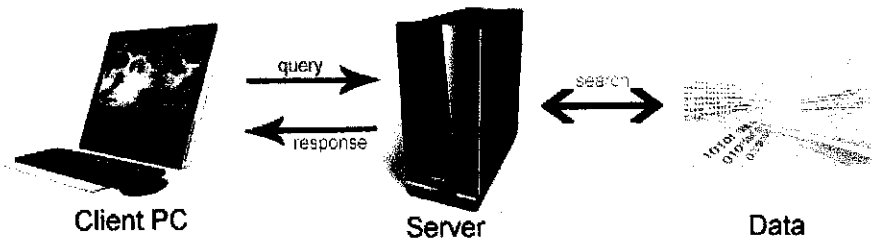


Figure 3.3 Client Server Architecture

3.2.2.2.2 The Story Boards.

Sample of index page is shown in **Figure 3.4** next page. This is the introduction page of the website when user first visiting it. Random pictures for places of interest in Ipoh are shown at center of the page every time the index page loads.

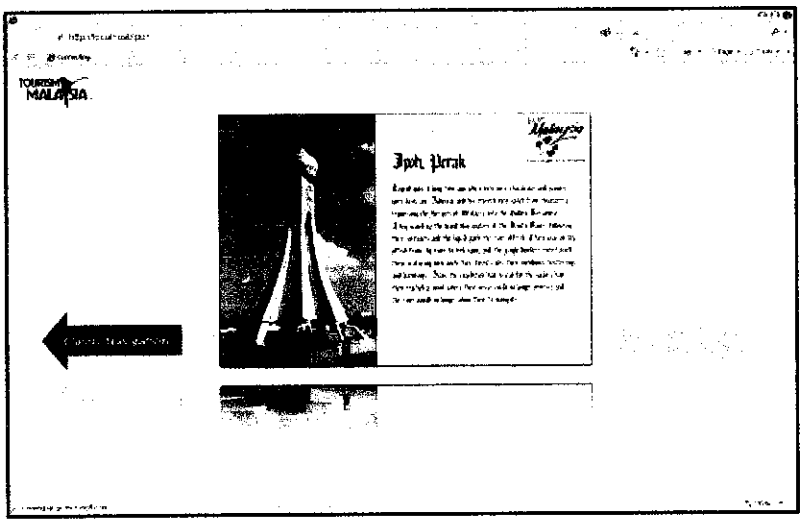


Figure 3.4 Example of Index page

User are given two options to browse the website, the traditional way of website browsing with mouse clicking activities and the new proposed way, which is clickless mouse interaction where mouse clicking activities are not available during web browsing session.

The story boards for this prototype are shown below.

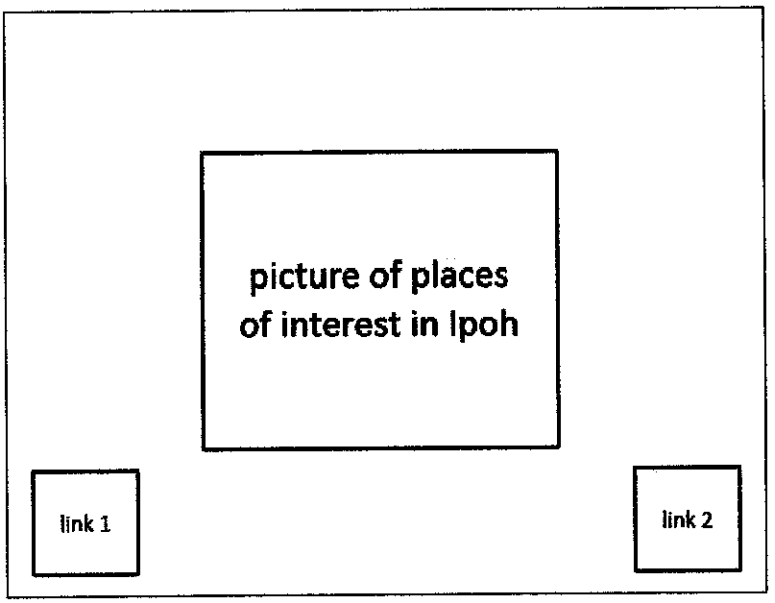


Figure 3.5 Storyboard for Index page

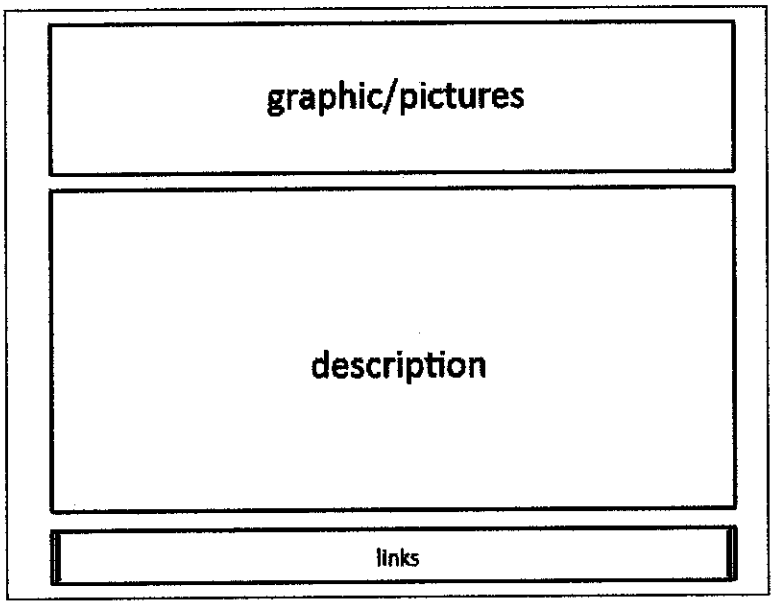


Figure 3.6 Storyboard for Home, classic navigation

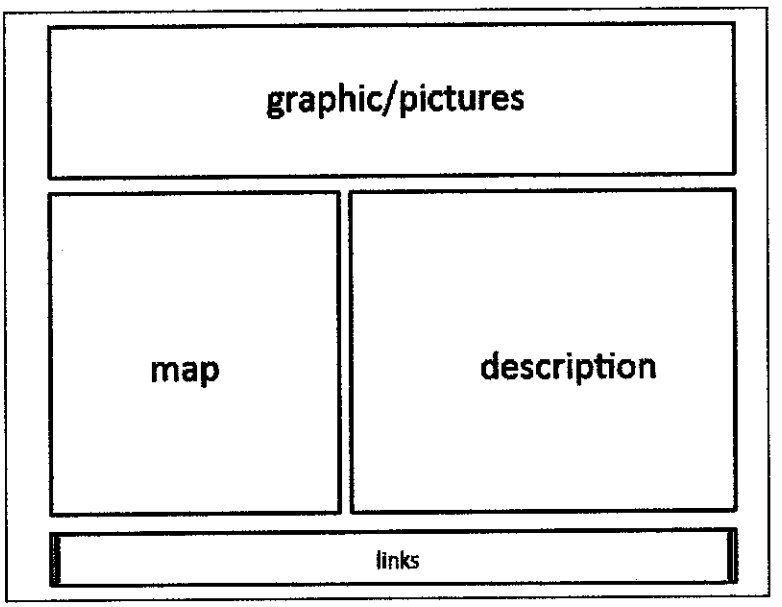


Figure 3.7 Storyboard for Map, classic navigation

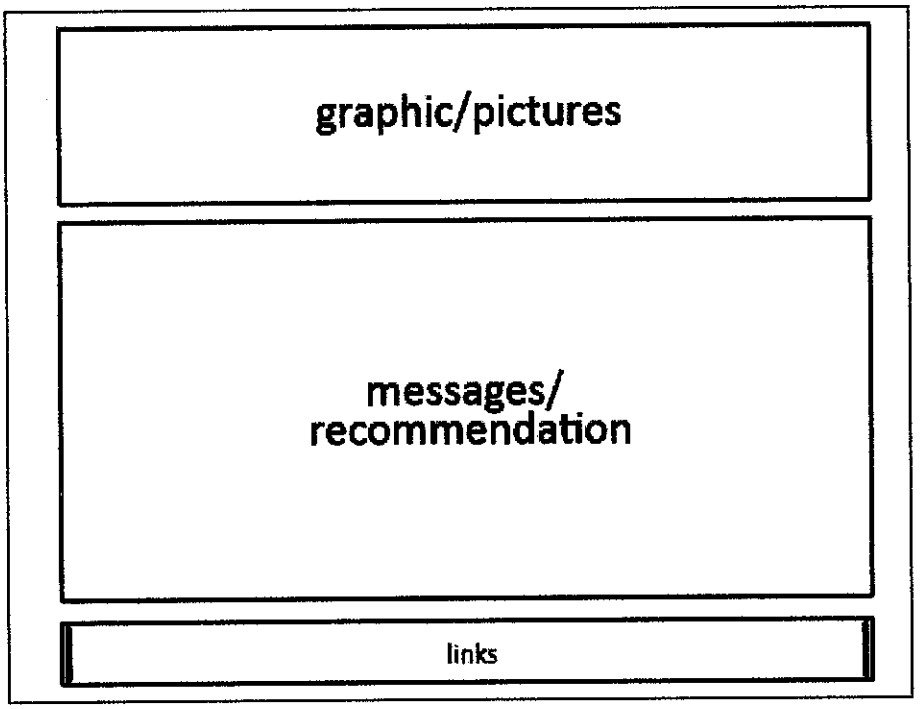


Figure 3.8 Storyboard for Response page, classic navigation.

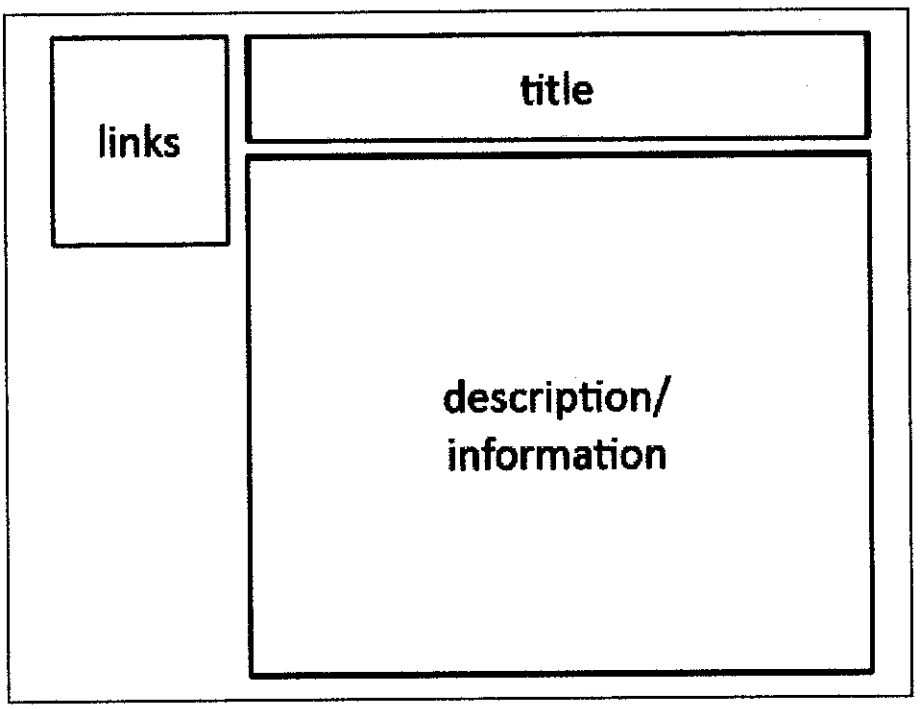


Figure 3.9 Storyboard for Home, Clickless Interaction

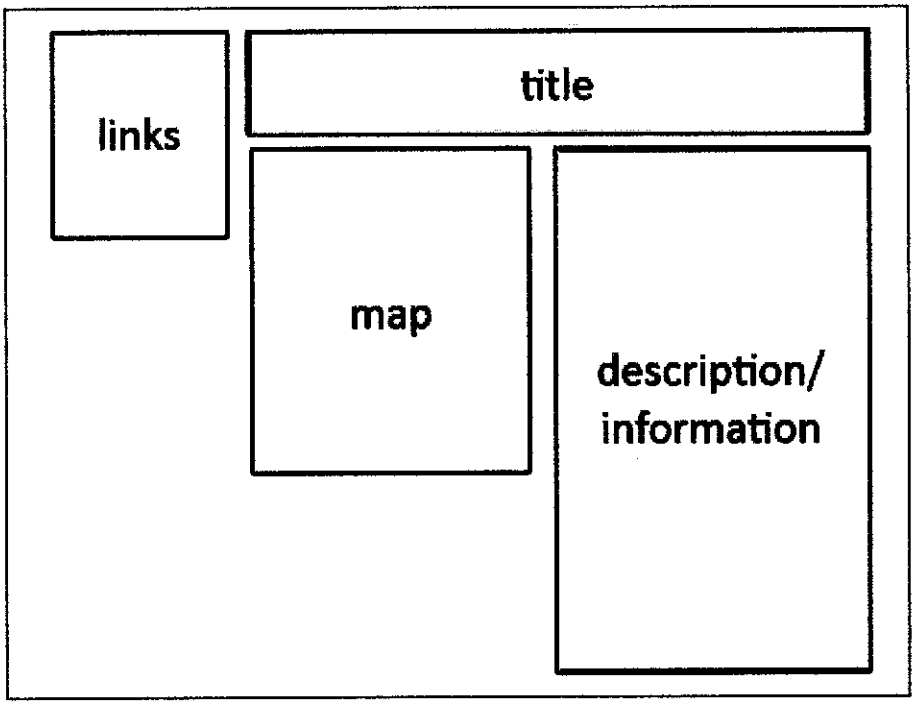


Figure 3.10 Storyboard for Map, Clickless Interaction

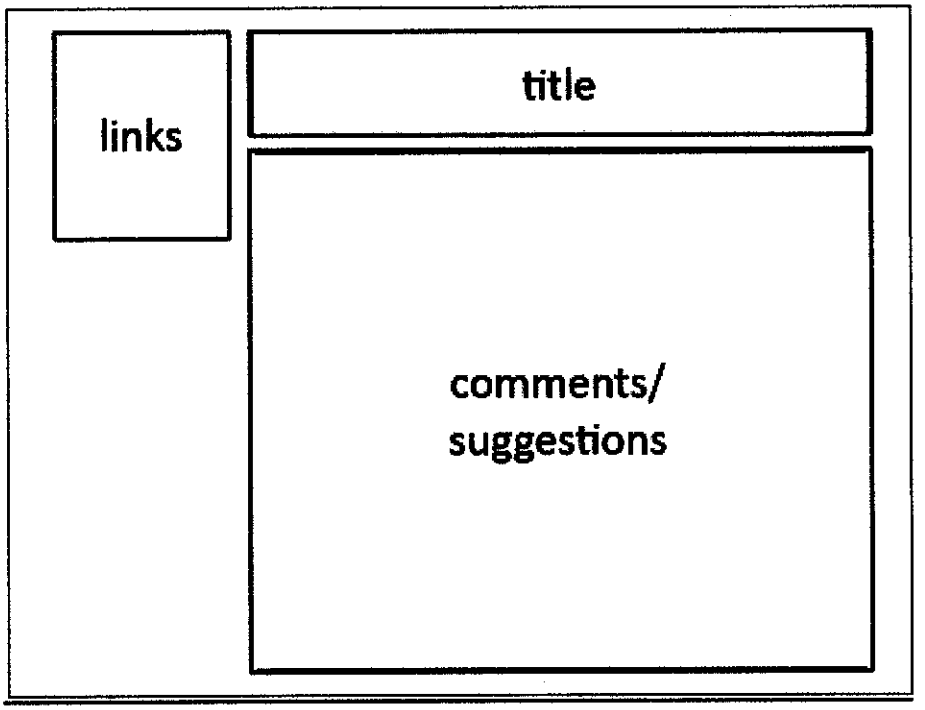


Figure 3.11 Storyboard for Response, Clickless Interaction

Mouse clicking activities will be disabled in the clickless interaction version. The normal way to open a link or select an object will not be available and it will be replaced by mouse over function. Once the mouse cursor moves on top of a link, it will activate a special function which will display GO button (**Figure 3.13**). If user moves their mouse over the GO button, it will then open the selected link. It will reduce mouse clicking activities whenever users wanted to open a new link.

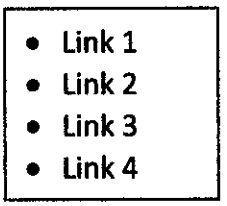


Figure 3.12 Website hyperlinks

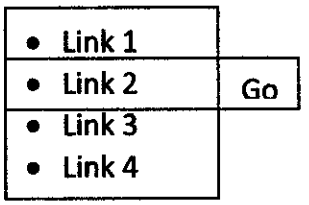


Figure 3.13 Hyperlink mouse over with Go button

The normal function of left mouse click is to make a selection such as to open a link, click buttons, tick-box or open up menu items. These functions are replaced by mouse movement or by hovering on top of the selected area of functions. This can be done by using "RollOver or MouseOver" function available on Adobe Flash. Even if user accidently clicks the mouse, it will not have any effect or have any functionality on the website.

Right click to open a context-sensitive menu such as properties will be also disabled in this clickless mouse interaction environment.

3.2.2.2.3 Use Case Diagram

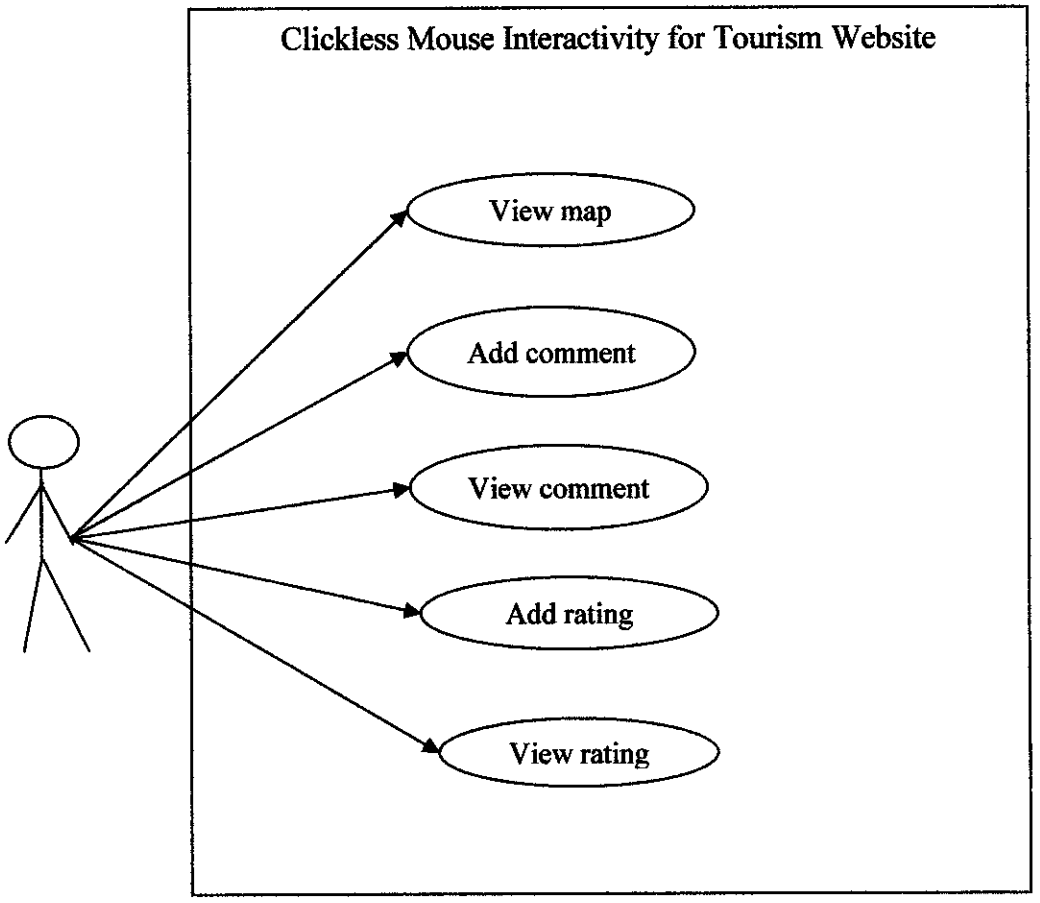


Figure 3.14 Use Case diagram, Clickless Mouse Interactivity for Tourism Website.

3.2.2.2.4 Use Case Analysis

Use Case defines basic process the system needs to handle. The actor involved in this process is the web site visitor.

Website Visitor:

1. View Map

   User can view the online map and check for their location and the estimated time to reach the destination chosen.

2. Add Comment

   User can leave their comment on selected pages.

3. View Comment

   User can view other visitors comment.

4. Add Rating

   User can add a rating for the website statistic which will ask them on their opinions on clickless mouse interaction website

5. View Rating

   User can view the rating which has been accumulated.

3.2.2.2.5 Mouse Over Link Function Flowchart

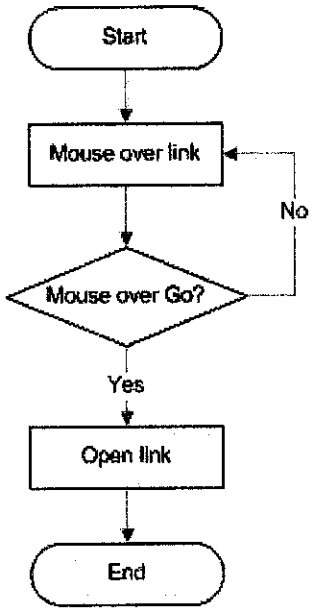


Figure 3.15 Mouse Over link and Go flowchart.

This flowchart shows how to activate and open a new link in the clickless mouse interaction.

1. When the mouse pointer is over the link, it will trigger a special function which will show 'GO' button next to the link.
2. Once the mouse pointer goes over the popup GO button, it will then open the desired link.

With this function, it will prevent users from opening a new link accidently when the mouse pointer goes over the link.

3.2.2.2.6 Mouse Over Shortcut for Textbox Flowchart

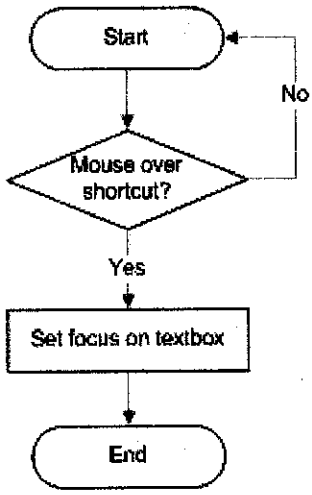


Figure 3.16 Mouse Over Shortcut for Textbox

The flowchart above shows how to select a textbox without clicking in the textbox itself.

When the mouse moves on top of the shortcut which is located next to the text box, it will automatically focus on the text box located next to it.

3.2.2.2.7 Mouse Over Hotspot Flowchart

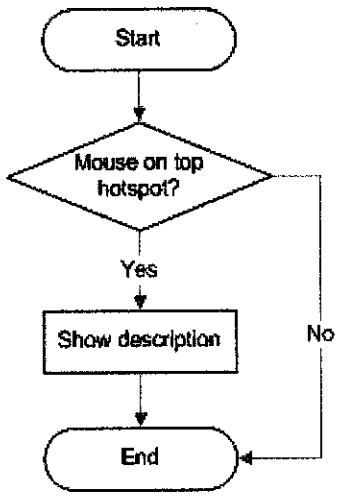


Figure 3.17 Mouse Over Hotspot for Map Description

The flowchart above shows the function of a hotspot located at map page. These hotspots are located at few selected locations.

1. When user mouse over and leave their cursor on top of the hotspot, it will trigger a function that will show descriptions of the selected places.
2. Once the mouse is move outside the hotspot, the description will fade away.

3.2.2.3 Implementation

In this stage, the system will be implemented in local computer; it is not the finish prototype which will be delivered to the public. This is the stage where the prototype will be refined if there is any bugs or error in the previous prototype. Please refer to the Gantt Chart in Appendix A.

3.2.3 System Prototype

System prototype will be developed and feedback from users will be taken to improve the system and understanding the requirements. Users will be notified that the system is only a prototype and not the finish product. If the product does not meet the requirement, it will go back to the requirement analysis stage.

3.2.4 Implementation/Evaluation

In this final stage, the prototype will be implemented and users can access the system. Evaluations are conducted on various aspects to measure the quality of the website and to make sure that the system works without any flaws.

Evaluation stage will be conducted where UTP student will be testing the system as the system goes online via the intranet. All comments and suggestions will be recorded by the system and a survey form will be provided to know their feedback on clickless mouse interaction.

3.3 Tools required

3.3.1 Hardware

The hardware tools used during system development is a laptop powered by Intel Centrino Mobile 1.73GHz with 2GB DDR II RAM and 80GB of hard disk space.

Client PC with any hardware specification can run this system.

3.3.2 Software

This project is developed using Adobe Dreamweaver and Adobe Flash. phpMyAdmin will be use to handle the administration of MySQL over the web and Apache will be the server for this project. Adobe Photoshop will be the image editing software during this entire project.

Client PC should be installed with latest Flash plug-in and a compatible web browser such as Internet Explorer or Mozilla Firefox.

During the development of this project, Mozilla Firefox was used as the main browser to test the application.

CHAPTER 4
RESULTS AND DISCUSSION

4.1 Clickless Mouse Interactivity

Some user will easily adapt to the clickless mouse environment and some will have problem navigating through the website just because they are already familiar with mouse clicking action to navigate websites. They normally move their mouse while reading or browse through the website and in the clickless environment, any mouse over the link will trigger the link to open and this is one of the reason they does not like the clickless mouse navigation.

4.2 Analysis

This section is based on response that has been gathered by the author from the questionnaire which has been handed out to 20 random people which consist of working adults and students. The objective of this questionnaire is to understand the internet usage activities and website accessibility especially on human computer interaction and have been carried out during the planning stage of system development. Sample of questionnaire is available at **Appendix A.**

4.2.1 Questionnaire Result

This questionnaire is divided into three sections, Section A, B and C.

4.2.1.1 Section A

This section gathers information on basic computer usage. The first question is about how often they use computer. From the pie chart at **Figure 4.1** it shows that 60% of the response answers 'often' where they use the computer daily, 35% answers 'regularly' where they use it daily but not for a long period of time at one time and 5% answers 'rarely'.

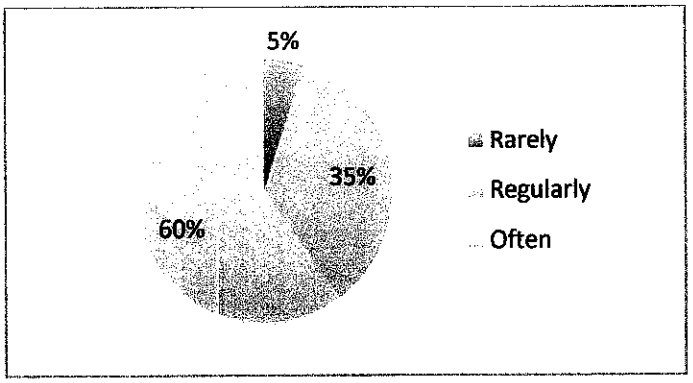


Figure 4.1 Computer usage

Second question is about the time they spend when they use the computer. From the **Figure 4.2** below, it shows that 55% of them spend almost 5 hours in front of the computer and 40% of them use the computer more than 5 hours. Another 5% use it for one hour or less.

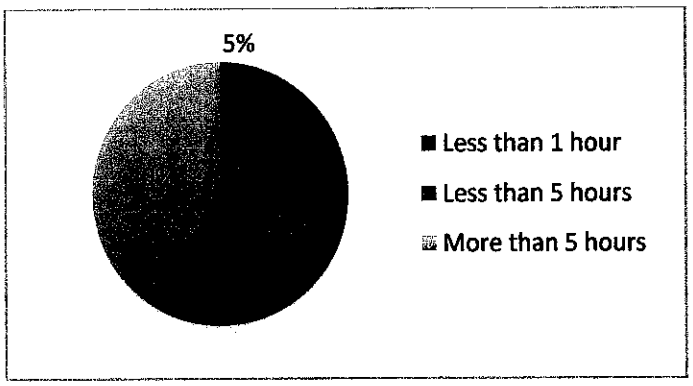


Figure 4.2 Time spent when using computer

Third question is about the purpose of using computer. From **Figure 4.3**, it shows that 42% of them use it for their work, 38% to access the internet, 15% answer others and another 5% for entertainment such as listening to music and watching videos.

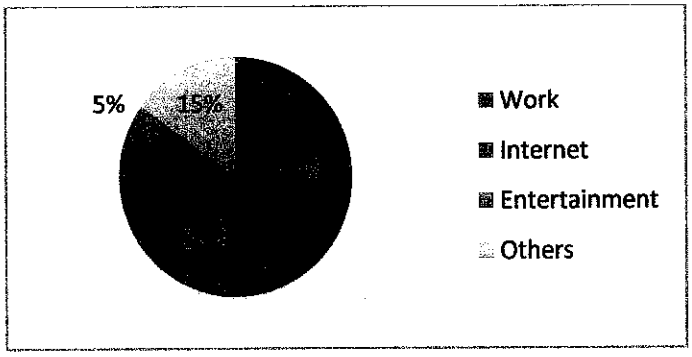


Figure 4.3 Purpose of using computer

4.2.1.2 Section B

This section gathers information on mouse clicking. The first questions ask whether they are comfortable with mouse clicking after a long period of time. Result is shown below at **Figure 4.4**

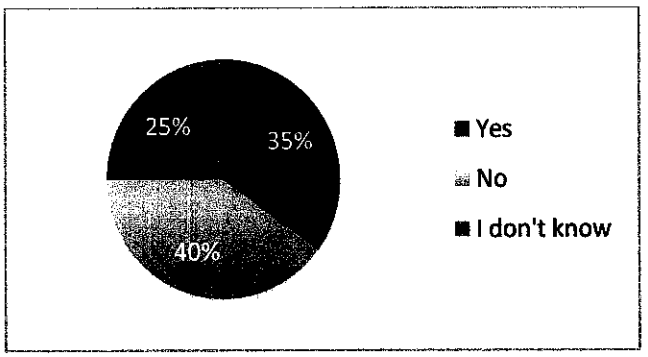


Figure 4.4 Comfortable with mouse clicking

The second question is about other clickless interaction website that they ever visited or stumble upon. It shows that none of them ever visited clickless mouse interaction website as shown in **Figure 4.5** below.

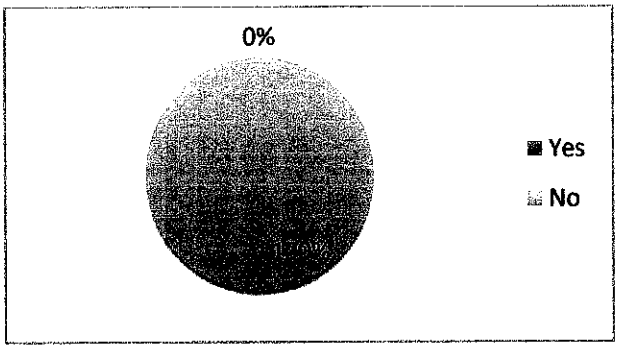


Figure 4.5 Visited clickless interaction website

The third question is about their opinion on clickless mouse interaction where no mouse click is needed to browse through the website. Most of the answers are about navigation around the clickless environment website.

4.2.1.3 Section C

This section gathers information on the common website user visited when they are on the internet. First question is to let them list down the type of website(s) that they often visit. The result is shown below, **Figure 4.6**.

Communication scores the highest percentage of 42% where they said they use the internet to stay connected with friends, colleague and get to know new people via e-mails, instant messenger, blogs and other web services. Second on the list is Info Gathering by 30% where they use the internet to find and collect information.

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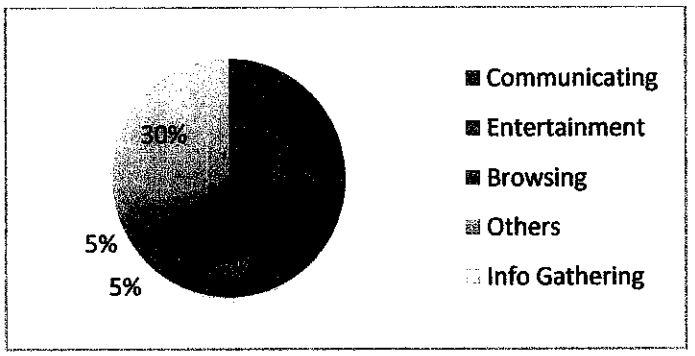

Figure 4.6 Website visited

The second question asked whether they use the internet to look for online map. The result is as shown in **Figure 4.7** below.

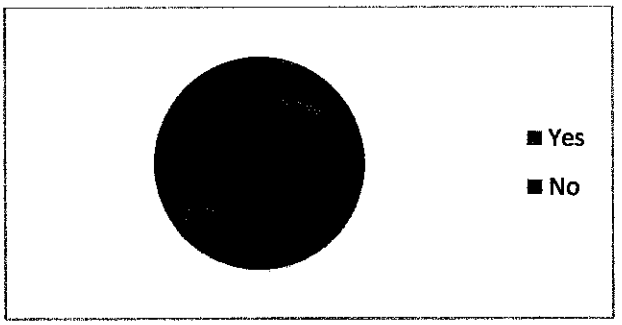

Figure 4.7 Visited online map website

Third question ask whether the website offer adequate information that they wanted. Result is as shown in **Figure 4.8**

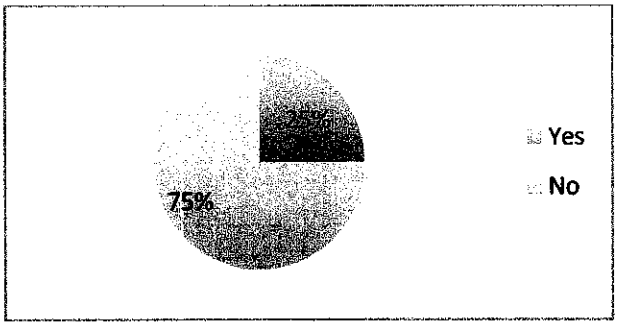

Figure 4.8 Provide adequate information

The last question is about their expectation from Clickless Mouse Interactivity for Tourism Website. Most of the answers prompted for an easy to use system, user friendly interface and easy to reach information.

4.3 Website Interface Design

This prototype system is designed to have a clear and simple interface so that user can easily browse the website. The width of this website has been fixed at 800 pixels and the height is flexible to make sure that users can view this site in any screen resolution from as low as 800 by 600 pixels.

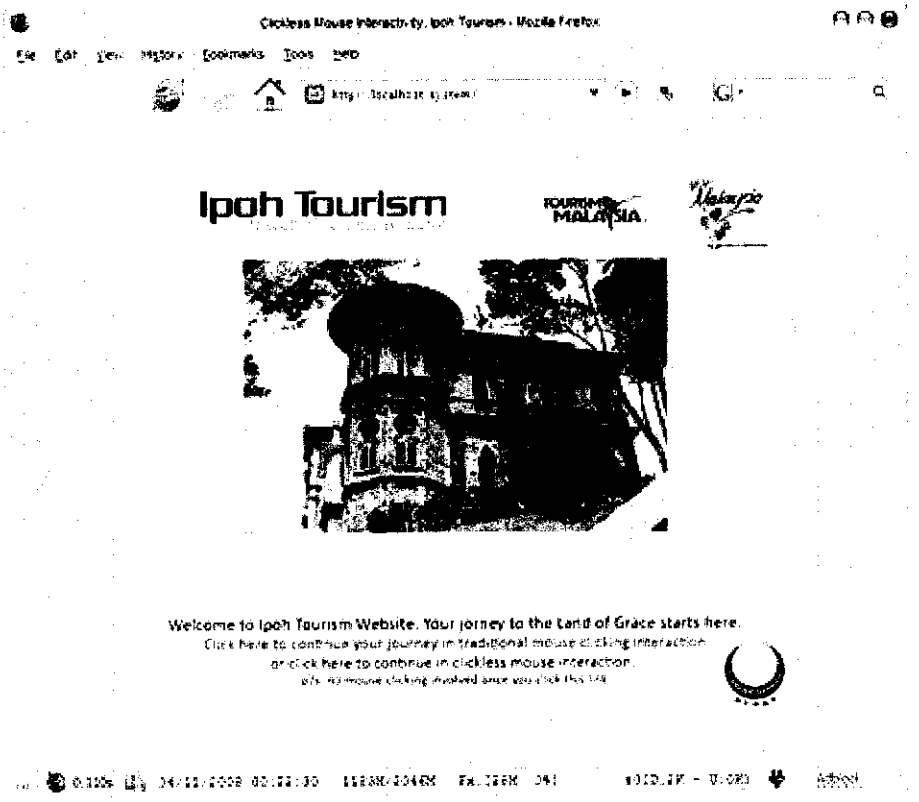

Figure 4.9 Index page

The index page will show a random picture of iconic places available around Ipoh town as shown in **Figure 4.9** above, for example picture of Kellie's Castle. There are two different ways to interact with the website, traditional mouse clicking interaction (shown in red) and clickless interaction which doesn't involve any mouse clicking which is being replaced by mouse movement to activate special function like open up a link, select an option and activate functions.

4.3.1 Traditional Mouse Clicking Interaction

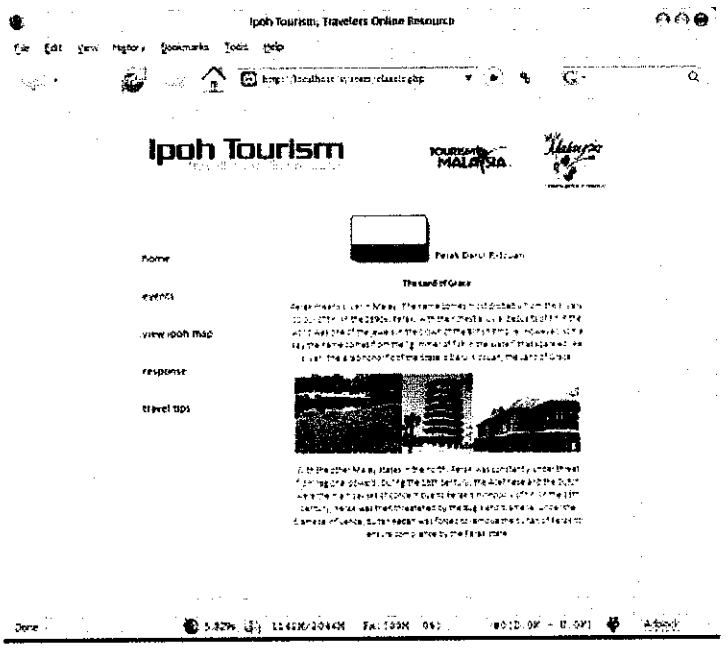

Figure 4.10 Ipoh tourism with traditional mouse clicking interaction

If users click on Traditional Mouse Clicking Interaction, they will be directed to the page shown as above (**Figure 4.10**). This is the landing page which shows brief description on Perak itself. On the left side of the website is the menu available for browsing (**Figure 4.11**).

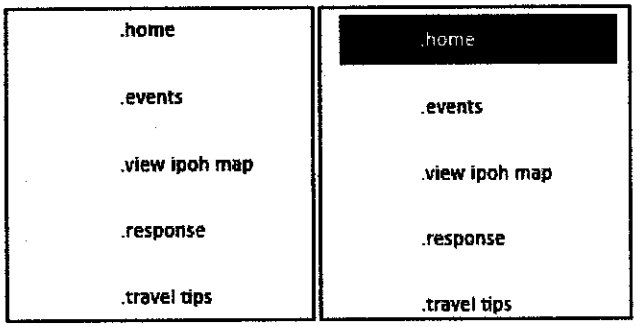

Figure 4.11 Menu of the website and when it is on mouse over (right)

The figure above shows the menu when a mouse move over it. It will show a dark background with white text link which will help user to know that their mouse is over a certain link and they can click that menu to open the link. There are basically 5 links available in this website which consist of *home, events, view Ipoh map, response* and *travel tips*.

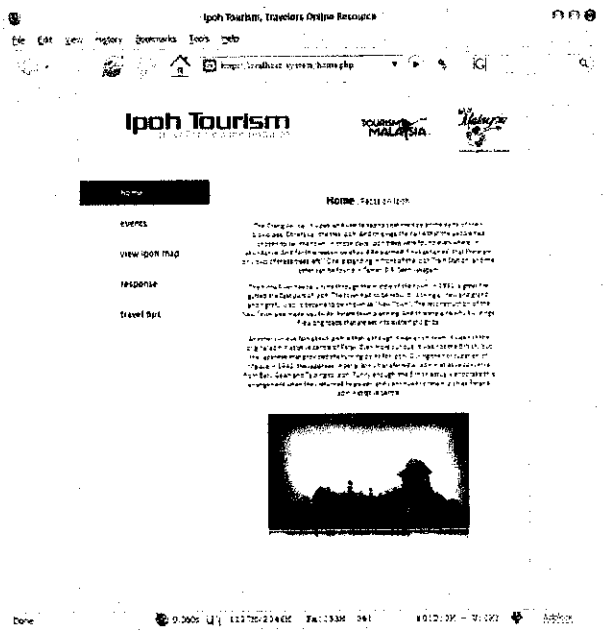

Figure 4.12 Traditional mouse clicking, home menu.

In this *Home* section (**Figure 4.12**), user can learn about the history and facts about Ipoh Town. Information such as where does the word Ipoh came from and some other fun facts to know about.

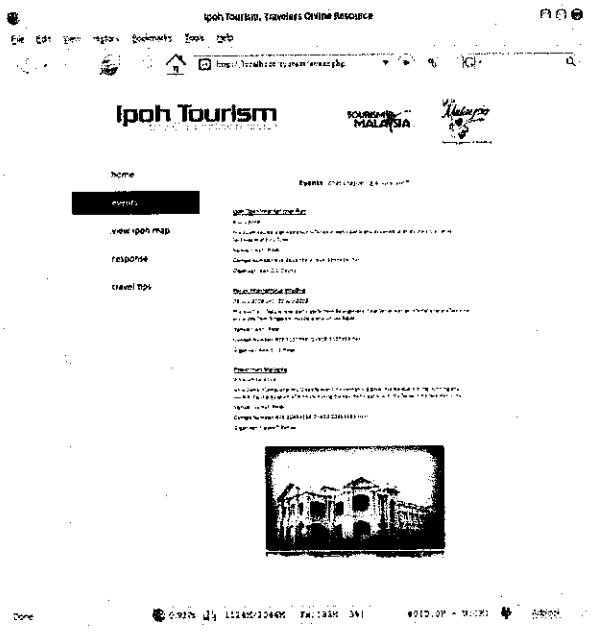

Figure 4.13 Traditional mouse clicking, Events menu

Events page (**Figure 4.13**) will provide user information regarding on events that will be organized by some organization and company around Ipoh. It will show the event title, time and date, its location and the organizer.

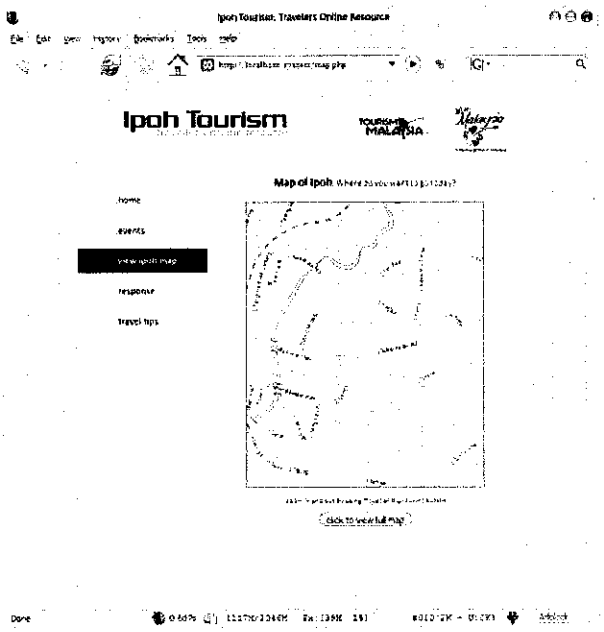

Figure 4.14 Traditional mouse clicking, Ipoh map

Ipoh map (**Figure 4.14**) shows partial of Ipoh map where user can zoom in and out by using ↑ (up) and ↓ (down) button as well as pan the map position by dragging the mouse over it. To view the full size map, user can click on the "*click to view full map*" button. That button will pop up a new window with full size Ipoh map as shown below.

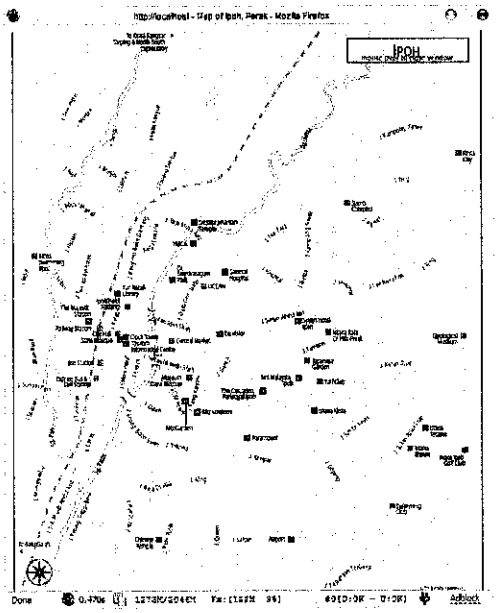

Figure 4.15 Full size Ipoh map

Ipoh map (**Figure 4.15**) above show the full size map of Ipoh when user clicks on the view full map button previously (**Figure 4.14**). There are a few hotspots available in this prototype. Once user moves their mouse over the certain hotspot, they will activate a hidden function and it will shows a picture and description of that place on top left side of the page. When the mouse moves out of the hotspot area, the description box will fade away as shown in **Figure 4.16** below.

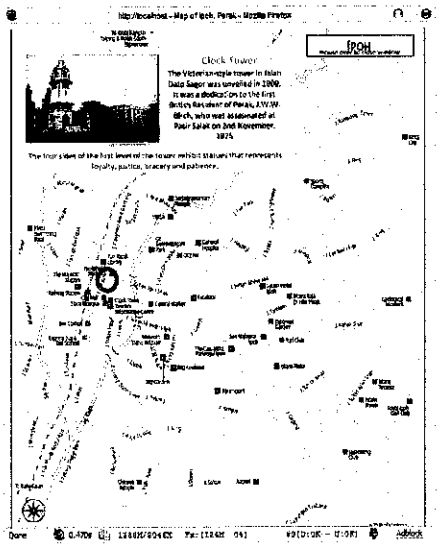

Figure 4.16 Ipoh map with mouse over Information

Figure 4.17 below will appear once user mouse over '*Close this window*' button and they will be prompt with a question whether they really do want to close the window to prevent them from accidently close the window.

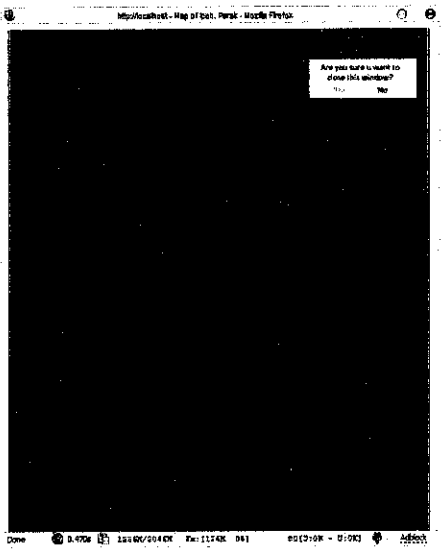

Figure 4.17 Ipoh map confirmation box

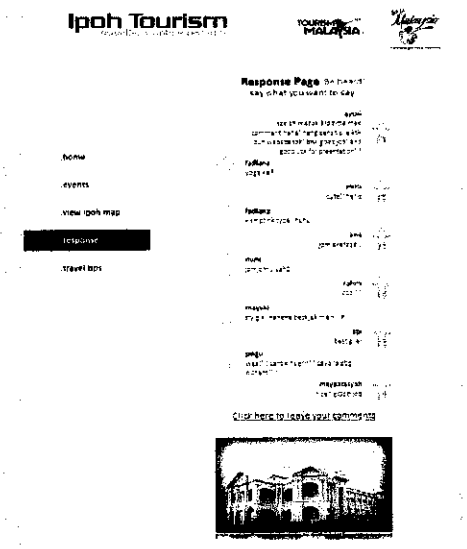

Figure 4.18 Traditional mouse clicking, response page

Response page (**Figure 4.18**) is a page where user can leave their comments and suggestions regarding the website. To leave their comment, they have to click on the "*Click here to leave your messages*' and a new window will pop up as shown in **Figure 4.19** below.

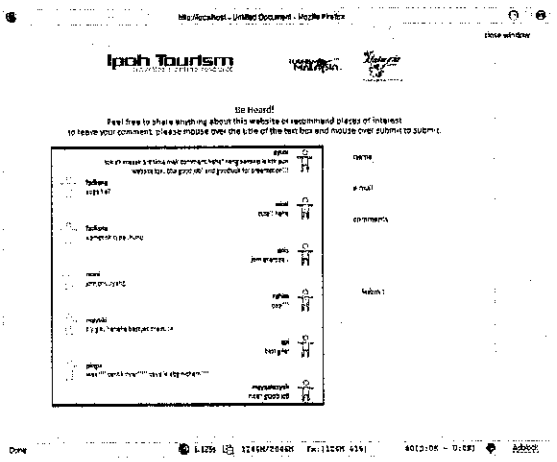

Figure 4.19 Response page

They are required to key in their name, email address and comments (**Figure 4.20**). Their email will not be shown to the public as it will only be stored in the database and can only be seen by the administrator so that the admin can send them an email if they leave questions on that page. This page implements clickless mouse interactivity where user just mouse over the textbox to select the current textbox and can start typing their information.

Figure 4.20 Submit comment

To submit comments, user have to mouse over the submit button (as shown in **Figure 4.19** previously) and that button will be replaced by two buttons which consist of 'Cancel' and 'Continue'. User have to mouse over *Continue* button to submit the comment or *Cancel* to cancel the action.

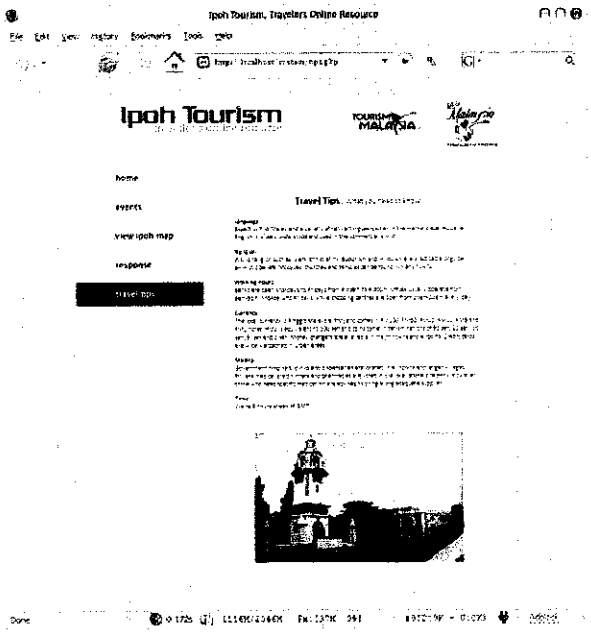

Figure 4.21 Traditional mouse clicking, travel tips page

Travel tips page (**Figure 4.21**) as shown above is a page dedicated to tourist from outside Malaysia who wishes to know or gain basic knowledge on Malaysian language, religion, currency, time zone, medical support and the currency used.

4.3.2 Clickless Mouse Interactivity

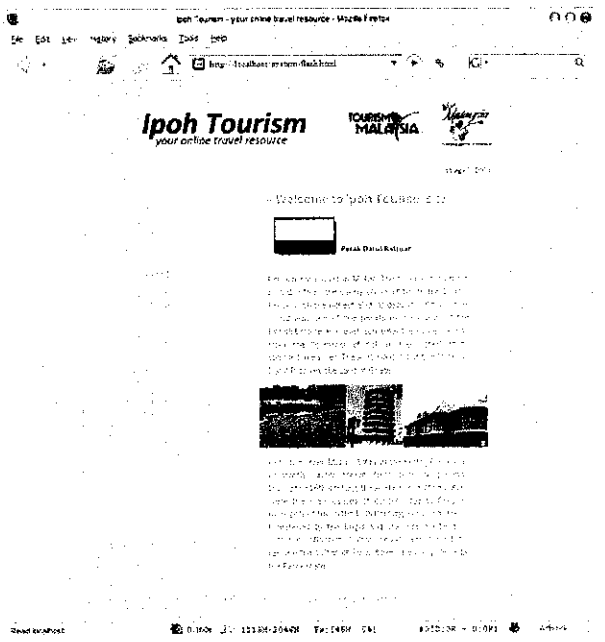

Figure 4.22 Clickless mouse interactivity, landing page

Landing page (**Figure 4.22**) above is for clickless interaction. It still resembles the same interface design as the traditional clicking interactivity but without the need of mouse clicking. This page is done entirely using Adobe Flash and scripting using ActionScript. On the left side of the page is the menu button (shown in **Figure 4.23** below)

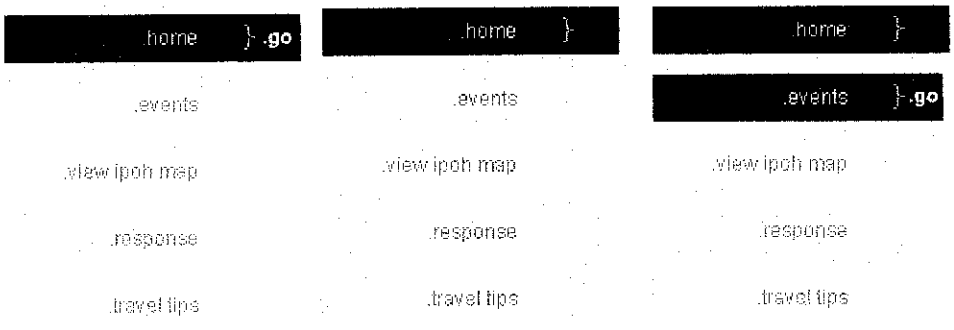

Figure 4.23 Clickless mouse interactivity, menu buttons

Clickless Menu buttons (**Figure 4.23**) as shown above are the sequence of events that happens when a mouse is over a button. Once the mouse is over the button, it will activate a hidden go button. User have to mouse over the go

button in order to open the selected link, from the sample above, a home button which leads to home page. After the transition completed, the home button will be highlighted to show user where is he/she is currently at. When they want to open another link, the same process will occurred where they have to mouse over the button and hidden function which will show the go button.

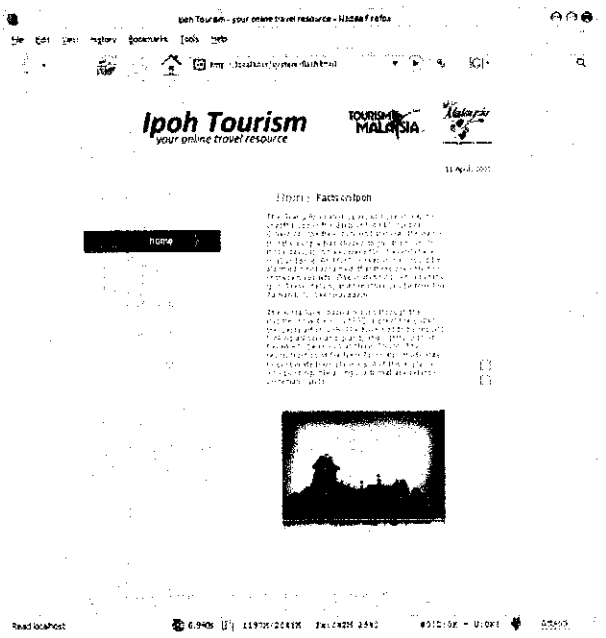

Figure 4.24 Clickless mouse interactivity, home

Home (**Figure 4.24**) as shown above shows same information as the traditional click interactivity but the information is set on a scrollable textbox and to replace the click button to scroll down the textbox, auto scroll is used. (**Figure 4.25**) shows that the down button is currently being mouse over and the text is scroll down to the lowest part of the text box.

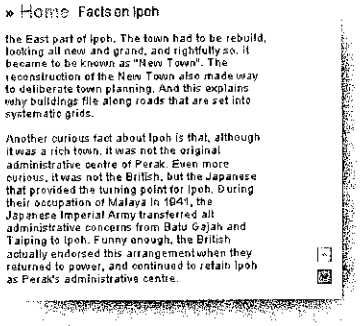

Figure 4.25 Clickless mouse interactivity, auto scroll

Figure 4.26 Clickless mouse interactivity, events

Events page (**Figure 4.26**) above also uses the same mouse over and scroll down and up function (**Figure 4.25**) to view the current events happening around Ipoh.

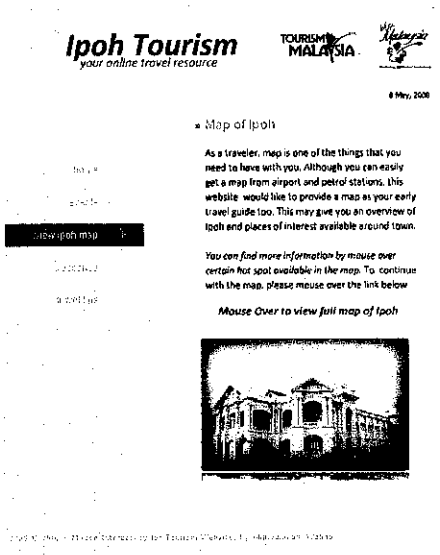

Figure 4.27 Clickless mouse interactivity, view Ipoh map

View Ipoh map (**Figure 4.27**) has the same function as the traditional clicking interactivity where when user's mouse over the hotspot, *Mouse Over to view full map of Ipoh*, it will open up a new browser window and display the full size map (**Figure 4.15**)

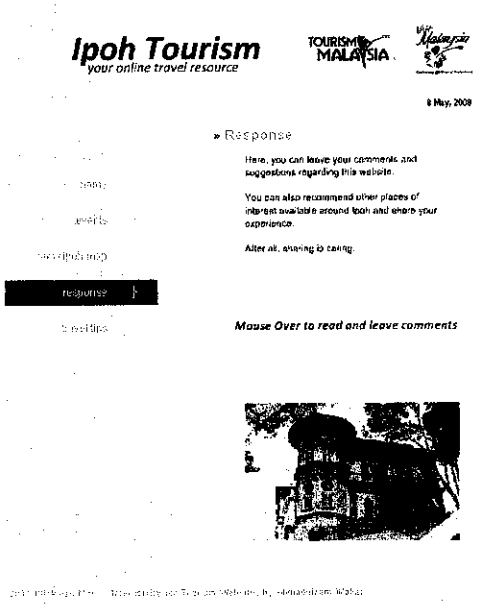

Figure 4.28 Clickless mouse interactivity, response

Response page (**Figure 4.28**) is a page where user can leave their comments and suggestions. To open the external pop up response window (**Figure 4.19**), user has to mouse over the hotspot button as shown above which is *Mouse over to read and leave comments.*

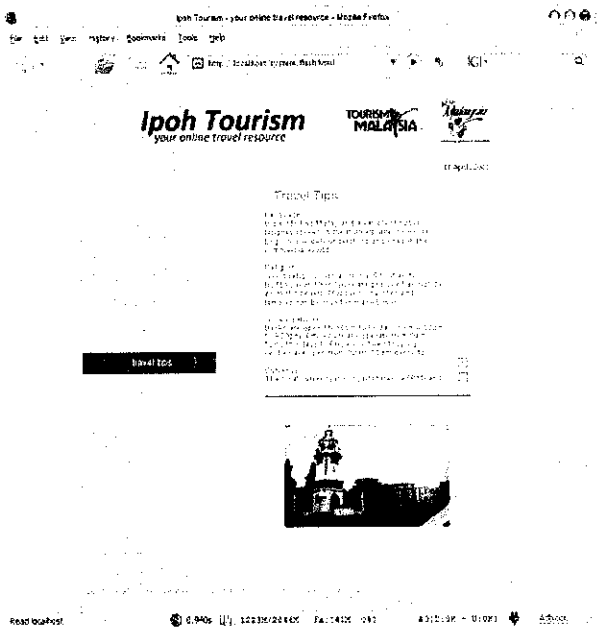

Figure 4.29 Clickless mouse interactivity, Travel tips

Travel tips (**Figure 4.29**) show tips for tourist outside Malaysia to have basic understanding on Malaysian language, currency and many more.

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Clickless Mouse Interactivity for Tourism Website is developed to show to web users that mouse clicking is not always needed to browse through web sites. With mouse movement, user can activate certain functionality that can replicate mouse clicking action.

Clickless mouse interaction will help web site users to reduce their mouse clicking activity where constant mouse clicking can cause discomfort to users. All they need is to change their perspective on how to navigate through a clickless mouse environment and retrieve the content.

From the prototype which has been developed in this project, first time user will have problems to browse through the clickless mouse environment but after a while, they will get used to the environment. Once they get the used to it, they found out that clickless mouse can help them browse and open up link faster. The drawback that has been identified by tester is the sensitivity of the links and this has been address and the recommended actions to solve this problem have been discussed in Future Works.

5.2 Future Works

There are three enhancements that can be done to this prototype system in the future. First of all is the clickless mouse navigation control where user can be given few choices on how to open a link, based on a timer, mouse over or by mouse gesture.

Second thing is to replace the whole mouse function or in other word, browsing the web without the need of a mouse. These can be done by using keyboard shortcut or by type in the short command or shortcut keys and it will activate the hidden links. This will eventually reducing the need of use of a mouse and could be a good case study to see whether normal user can interact without using any mouse.

Third and last thing to be enhanced are to expand the scope of map coverage in the website to a fully working tourism website that covers whole Perak itself. If this interactivity received good feedback and can be accepted by the public, *clickless mouse interactivity for tourism website* can be expand not only to tourism website but can also be implemented in any commercial, service or any website that brings a new meaning of interactivity for websites.

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Appendix A

Clickless Mouse Interactivity Questionnaires

The objective of this questionnaire is to understand the internet usage activities and website accessibility especially on human computer interaction.

The proposed system which will be developed will be a study on **clickless mouse interaction** where the usage of a mouse is limited to movement without any usage of left or right-click. It will be developed for Ipoh Tourism Website.

Thank you for participating.

Please select appropriate answer and fill in the blanks.

Section A

Question

1 How often do you use computer?

• Rarely • Regularly • Often

2 How many hours do you spend while using the computer?

• Less than 1 hour • Less than 5 hours • More than 5 hours

3 What is your purpose of using computer?

_____

_____

Section B

4 Have you ever feel uncomfortable with mouse clicking while using the computer for a long period of time?

• No • Yes • I don't know

5 Have you visited any website which does not involve any mouse clicking?

• No • Yes; _____ (*website name*)

6 What do you think of *clickless mouse interaction* where no mouse click is needed to browse through the internet?

_____

_____

Section C

7 Please list down type of website(s) you often visit while on the internet?

_____

(e.g.: Info Gathering, Entertainment, Browsing, Communicating, Transactions, etc.)

8 Have you ever use the internet to look for map of places?

- Yes
- No

9 Does that website offer you enough information needed?

- Yes
- No

10 What do you expect from Ipoh Tourism Online Map with Clickless Mouse Interaction?

_____

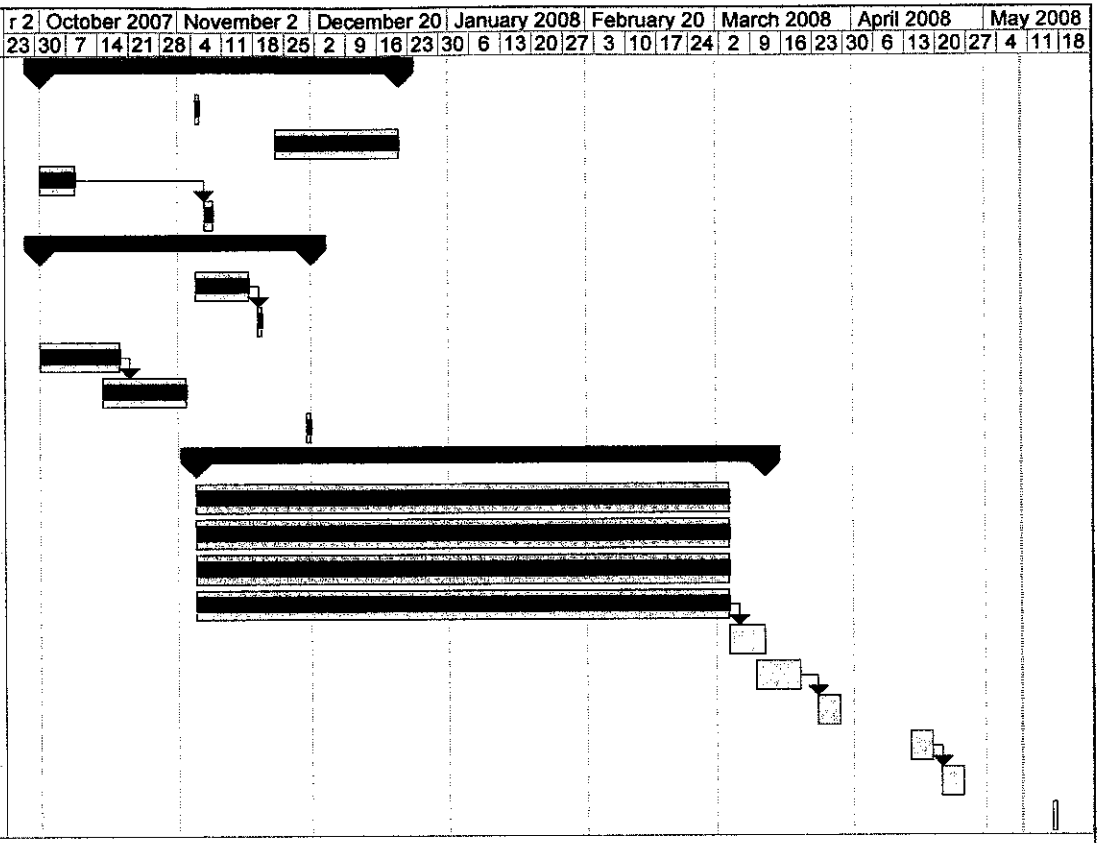
_____

End of questionnaire.

Thank you for participating.

Appendix B

ID	Task Name	Duration	Start	Finish
1	**Initiating**	**59 days?**	**Mon 10/1/07**	**Thu 12/20/07**
2	Meeting with supervisor	1 day	Mon 11/5/07	Mon 11/5/07
3	Research	20 days?	Fri 11/23/07	Thu 12/20/07
4	Preliminary investigation	6 days?	Mon 10/1/07	Mon 10/8/07
5	Determine software needed	2 days?	Wed 11/7/07	Thu 11/8/07
6	**Planning**	**45 days?**	**Mon 10/1/07**	**Fri 11/30/07**
7	Plan for suitable methodology	10 days?	Mon 11/5/07	Fri 11/16/07
8	Plan for task duration	1 day?	Mon 11/19/07	Mon 11/19/07
9	Prepare prelimenary report	14 days?	Mon 10/1/07	Thu 10/18/07
10	Prepare progress report	15 days?	Mon 10/15/07	Fri 11/2/07
11	Meeting with supervisor	1 day?	Fri 11/30/07	Fri 11/30/07
12	**Requirement analysis**	**92 days?**	**Mon 11/5/07**	**Tue 3/11/08**
13	Analysis	86 days?	Mon 11/5/07	Mon 3/3/08
14	Design	86 days?	Mon 11/5/07	Mon 3/3/08
15	Implementation	86 days?	Mon 11/5/07	Mon 3/3/08
16	System prototype	86 days?	Mon 11/5/07	Mon 3/3/08
17	Implementation/Evauation	6 days?	Tue 3/4/08	Tue 3/11/08
18	Prepare final draft project presentation	8 days?	Mon 3/10/08	Wed 3/19/08
19	Seminar	5 days?	Mon 3/24/08	Fri 3/28/08
20	Prepare final report project presentation	5 days?	Mon 4/14/08	Fri 4/18/08
21	Final project presentation	5 days?	Mon 4/21/08	Fri 4/25/08
22	Submit desertation	1 day?	Fri 5/16/08	Fri 5/16/08



Project: Gantt Chart
Date: Fri 5/9/08

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline